THE

HOME FRIEND;

A WEEKLY MISCELLANY OF AMUSEMENT AND INSTRUCTION.

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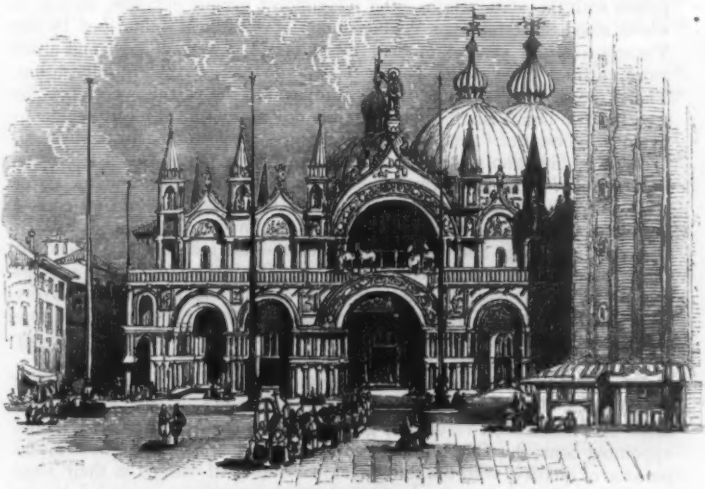
THE DOGE OF VENICE.



"THERE is a glorious city in the sea;
The sea is in the broad, the narrow streets,
Ebbing and flowing; and the salt sea-weed
Clings to the marble of her palaces.
No track of men, no footsteps to and fro,
Lead to her gates. The path lies o'er the sea,
Invisible; and from the land we went,
As to a floating city;—steering in,
And gliding up her streets as in a dream,
So smoothly, silently."

SUCH is Venice the Beautiful; for thirteen hundred years Queen of the Adriatic! Seated on the waters, she appears at a distance like a glorious

floating city—her domes, her spires, her cupolas, and towers, glittering in the sunbeams. A dream-like, silent city, unlike any other in the world! The rumbling of a wheel, or the tramp of a horse, are sounds never heard in her streets, if such may be called her noiseless, narrow paved passages. No; her streets are of water: instead of calling for your carriage, you must call for your gondola, in which you silently glide from one part of the city to another. Splendid marble stairs, with marble balustrades, lead up at once from the water to the hall door. No less than four hundred and fifty bridges connect the islands on which Venice is built; the chief of which is the celebrated bridge of the Rialto, thrown over the Grand Canal. The sides of this canal are lined with marble palaces of large size.

There is much to admire in this fairy-like and even now splendid city. The grand square of St. Mark, so gorgeous and magnificent, with its ducal palace, long the residence of the Doges of Venice—its cathedral, where you see nothing, tread on nothing, but what is precious—the floor all agate and jasper, the roof mosaic, the aisle hung with the banners of subject cities—its campanile, or belfry, with its immense bell, only rung in former times by order of the Doge—the Bridge of Sighs, connecting the ducal palace with the state prisons—the magnificent granite columns, on one of which stood the celebrated "winged lion of St. Mark," cherished by the Venetians as the symbol of their far-extended power. These, and much more, attract the eye of the traveller, and call forth his admiration. There, too, is the Giant's Staircase, leading into the palace, where may be seen the two lions' mouths, which gaped day and night to receive the anonymous informations that insured the safe gratification of private revenge. Woe be to him who was accused to the State by a paper dropped into the lion's mouth! He generally disappeared a short time after, and was never heard of again. The mysterious Council of Ten—the dreadful dungeons—the secret and silent executioners—alone knew his fate!

It was in her high and palmy days, when the magnificence and splendour she displayed were unequalled in Italy, that the inhabitants of the sea-girt city prepared one year to celebrate the Feast of the Ascension. Every citizen had donned his best attire, and wore his gayest smiles. The gondolas were decked out; and all made ready to witness the annual ceremony of the day—the marriage of the Doge with the Adriatic.

A splendid vessel, called the "Bucentaur," was in waiting. It was gilded from prow to stern, covered with an awning of rich purple silk, fitted up with crimson velvet and gold, and adorned with statuary. At the appointed hour, the Doge, Francesco Foscari, the senators, the nobles, and persons of quality, with the foreign ambassadors, all dressed in their state robes, entered the vessel, and, set in motion by powers concealed in the lower deck, the "Bucentaur" sailed out into the open sea, followed by innumerable gondolas. The gondola is a light boat—a kind of canoe—impelled by two gondoliers, who accompany the strokes of their paddles by singing a melodious ballad. It is painted black, in consequence of a law having been passed to that effect, to restrain the extravagance of the nobles, —and prescribing likewise its size and form.

When all were in the open sea, the Doge, with much ceremony, threw a gold ring into the blue waters of the Adriatic, saying in a loud voice, "We marry thee, O Sea, in token of that true and perpetual dominion which the Republic has over thee."

The "Bucentaur, with its noble company, then returned to Venice.

"This is an imposing sight indeed!" exclaimed Giovanni Micheli to his

father, a Venetian noble, as in their gondola they witnessed the ceremony; "our beautiful city may well be termed Queen of the Waters; but I know not exactly the origin of the custom; can you tell me, father?"

"I can, my son. About three hundred years since, the Republic assisted Pope Alexander III. against his enemy Frederick Barbarossa, and destroyed his fleet. His holiness, who had taken refuge in Venice, was very grateful for this help, and when the Doge Ziani returned in triumph to the city, he went to meet him, attended by a train of nobles, and a vast concourse of people who rent the air with joyful acclamations. Then the pope, embracing the doge, gave him a golden ring, saying, 'Take this ring, and present it to the sea, in token of your dominion over it. Enjoin your successors to perform annually the same ceremony, that succeeding ages may learn it was your valour which acquired this great prerogative, and subjugated the ocean, even as a wife is subject to her husband.' Such was the origin of the doge's marriage with the Adriatic, Giovanni, and long may the ceremony be continued!"

"Father," said the boy, with sparkling eyes, as he gazed over the waters, "I should like to be a doge! how proud and happy should I be this day!"

"Not so happy as you are, Giovanni. Proud the Doge Francesco Foscari well may be, placed as he is at the head of our flourishing and powerful Republic; but happy he is not."

"Not happy!" exclaimed Giovanni in surprise, "how can that be? he seems to have everything he could wish for: to be in the exalted station he is, one would think was alone sufficient to secure his happiness."

"Alas! that is the very cause of his constant sorrow," replied Micheli.

"As doge, he has been obliged to pronounce sentence of banishment against his only, his loved son."

"Oh how sad!"

"Yes; most earnestly desirous was Foscari of being elected doge, and much opposition he encountered before he attained the dignity. He at length gained the height of his ambition, but only to bring down upon himself unspeakable misery."

"But what offence had his son committed?" asked the boy. "Surely one who has been doge for so many years, and is so beloved by the people, might have pardoned, if he willed it?"

"My son," said the noble, in a low voice, after being satisfied that the gondoliers were out of hearing, "these are matters rarely spoken of; but it is right you should know what has happened, though at the same time I warn you never to mention the subject. Any remark on the proceedings of the Council of Ten might cost your father his life. Be silent therefore. You must know, then, that anxious as the Doge Foscari was to attain his present high office, he soon discovered that the throne he coveted was anything but a seat of repose. Accordingly, after some years, wearied with the factions which ascribed all disasters to the prince, he tendered his resignation to the senate, and was refused. At the end of nine years more, he again expressed his wish to retire—and was again refused. On this occasion, the council obliged him to take an oath that he would retain his burdensome dignity for life."

"But his son—what of him?" inquired Giovanni eagerly.

"He had four sons, but three of them died, and to Jacopo, the survivor, he now looked for the continuation of his name, and the support of his declining age; and tenderly attached were they one to the other. The young Jacopo married a daughter of the illustrious house of Contarini; the

nuptials were celebrated with great joy, and the doge began to look forward to some degree of happiness in his old age. The birth of a grandson increased his hopes. Alas! they were fatally disappointed. About five years since, Jocopo Foscari was denounced to the Council of Ten as having received presents from foreign potentates. This offence is considered by our law as one of the most heinous which a noble can commit. He was seized and put to the torture, his wretched father being obliged to preside. And from the lips of that father, who loved him so tenderly—who believed him innocent—he received the sentence which banished him for life to Napoli di Romania."

"But he was not guilty, sir, was he?"

"It is not easy to establish innocence before the Council of Ten," said Micheli, sinking his voice to a whisper. "The utmost the doge could do, notwithstanding his services to the Republic, was to obtain permission for his son to reside at Treviso, and that his attached wife should be allowed to accompany him in his exile."

"What a trial for the prince!" exclaimed Giovanni. "How does he bear it, father?"

"Wonderfully. He lets no one perceive, in his calm, dignified demeanour, the heart-consuming grief that is within. The feelings of the father appear to be lost in the stern justice of the doge; but it is not so. Every hour he mourns his beloved Jacopo!"

"But could he not procure a remission of the sentence? You say he has served Venice well?"

"Venice owes him much, my son. By his courage, prudence, and sagacity, he has increased her glory not less than her dominion. He has added four rich provinces to the republic, and rendered brilliant services to his country. During the many years in which he has been at the head of the state, he has by his conduct gained the respect of the senate, and the love of the people. But all this availed nothing with the Ten;—all this could not save his son!"

"Poor Jacopo! I pity him much, but I pity his father still more," said Giovanni.

"They are to be pitied indeed!" replied Micheli. "But Giovanni, my dear boy, I charge you never to mention what I have told you. It might bring you and me into trouble. Make no remarks, whatever you hear; remember the lion's mouth!"

These last words were uttered in a low impressive whisper, and the young Venetian boy, silently pressing his father's hand, signified that he understood their import and would obey.

"See!" said Micheli, after a pause of some minutes in the conversation, during which they glided in their graceful gondola over the placid waters, "How glorious looks the Bride of the Adriatic to-day! She is decked in unusual splendour for the occasion. See, Giovanni, in what a flood of golden sunshine she reposes! Look at her winged lion bidding defiance to her enemies! See the glorious standard of St. Mark unfurled to the breeze! see the brazen steeds glittering and glowing in the sun! Beautiful Venice! well may thy sons love thee and the nations fear thee!"

Giovanni gazed in delight and admiration. Forgetting for a time the troubles of the doge, he thought only of the fair city before him; and pride and joy filled his heart that he too was a Venetian.

That city was then in the height of her prosperity. The exhaustless treasures of the East were poured into her lap;—her vessels ruled the

seas;—her merchants were princes;—she was "a queen with an unequalled dower."

Those were the days when

"Many a subject land
Look'd to the winged Lion's marble piles,
Where Venice sat in state, throned on her hundred isles."

But within those marble halls was many an aching heart!

In the winter of this year an assassination took place in the streets of Venice. Hermalao Donato, a chief of the Ten, was murdered on his return from a sitting of that council, at his own door, by unknown hands. Amazed at the indignity offered to them, as well as at the magnitude of the offence, the council eagerly caught at the slightest clue which suspicion could afford as to the perpetrator of the crime. With stern countenances and bent brows they met in that hall where sentence had been passed on so many victims. At the head of the council-board sat the Doge Foscari:—

"Upon his calm and noble face
Deep thoughts had left their living trace,—
Thoughts, such as press, with giant power,
A common life into an hour;
Each line of lofty meaning there
Was graven by the hand of Care,
And the flash of that triumphant eye,
That arching lip's stern majesty,
Told of full many a foe withstood,—
Without, disdained—within, subdued!"

"Signors," said one of the Ten, when all had assembled, "I am happy in being able to give you, as I believe, some clue as to the author of this most barbarous murder. It chanced this morning that I was in my boat off Mestre, when, hailing one from the city, and inquiring what news was stirring, we were informed of the assassination of the noble Donato. Immediately returning to Venice, I found to my astonishment that few were aware of the crime which had been committed. This aroused my suspicions as to my informant, and, on inquiry, I learned that he had been seen in the city on the evening of the murder. Is it not strange, signors, that this person should have been acquainted with that which was not generally known for some hours after?"

"It savours strongly of guilt," they replied.

"Yet," said the doge, "his frank disclosure would seem to disprove his participation in the crime. The author of such a deed is not likely thus unseasonably and prematurely to disclose its committal—is he, think you, signors?"

"He doubtless put on the show of frankness to ward off suspicion," observed one of the Ten.

"He should be arrested at once."

To this all agreed.

"Who is the man?" inquired the doge, as paper, pen and ink were laid before him.

"His name is Pietro Raneiri, a servant of the exiled Jacopo Foscari," was the reply.

The prince spoke not—started not. But those near him might have observed a scarcely perceptible quivering of the lip, when that loved name fell thus unexpectedly upon his ear.

"Signors, there is the order for the arrest," he said in calm tones; "I

believe our business is concluded for the day;" and with a dignified step he left the council hall.

"He does not appear to feel much for his son," said one, "and yet he must be aware he is suspected."

"He *shall* feel then, ere long," was the reply.

"How, Loredano? what mean you?"

"How! can there be any doubt who is the author of this murder? Who could be more likely to arm the hand of an assassin against a chief of the Ten than one whom the Ten have visited with punishment? If the servant will not confess, the master must." He turned away muttering, "I have vowed to be revenged on him, and I will."

Ranieri was arrested; but though tortured in the most cruel manner that malice could devise, the unfortunate man denied all knowledge of the murder, and not a word did he utter that could justify the suspicions entertained against his master. Jacopo Foscari was, nevertheless, recalled from banishment, and, in the presence of his aged father, had to undergo similar tortures to those inflicted on his servant. And though they failed to wring from him the avowal of having even the slightest knowledge of the crime of which he was accused, the unfortunate young noble was convicted without proof, and sentenced to be banished for life to the remote island of Candia.

Again had the unhappy doge to pronounce the words which tore him from his last—his only son—his innocent Jacopo!

Yes,—Jacopo was innocent. A short time afterwards, a Venetian noble confessed on his death-bed that he had himself murdered Donato, from motives of private revenge. Yet this distinct proof of the young Foscari's innocence wrought no change in his unjust and cruel sentence!

"I cannot believe the young noble guilty of such a deed," said a citizen of Venice one evening to a friend, as they stood together on the Rialto, a few days after the second banishment of Jacopo. "It was an act unworthy one of the Foscari."

"Were he not guilty the Ten would not have condemned him," replied his friend.

"Nay, Filippo, the torture he endured must have wrung from him a confession, if so."

"He may have great fortitude, Giuseppe. I was told he uttered not a word or a groan. His father is not easily moved, you know."

"Ah, the doge! what must he not have suffered in beholding his son's anguish! What a trial for a kind and loving father to undergo! He feels, Filippo, he feels deeply, though he lets it not appear. To believe him innocent, as he must have done, and yet to pronounce the fatal sentence which sent the noble youth from his home for ever! My heart bleeds for him."

"So does mine. But, Giuseppe, it is as well not to talk of these matters. It is for the council to judge of the guilt of the young Foscari. They desire not our opinion on their proceedings, and it is safer not to give it. Be advised."

"Well," replied Giuseppe, as he turned away, "I only wish the Ten would act with a little more justice and a great deal more mercy, and then I should be satisfied."

The young man said this more to himself than to his companion, but the words were heard where he least intended they should be. One who was not friendly towards him, passing by, marked the incautious speech. That

night, a muffled figure, hurrying up the Giant's Staircase, dropped a paper into the lion's mouth. Ere two days had passed Giuseppe had disappeared from Venice. His friends never learnt his fate!

It was no wonder that Micheli warned his son to be careful of what he said in Venice!

> "A strange mysterious power was there,
> A power that never slumbered, never pardon'd,
> All eye, all ear, nowhere and everywhere;
> Entering the closet and the sanctuary,
> Most present when least thought of—nothing dropp'd
> In secret, when the heart was on the lips,
> Nothing in feverish sleep, but instantly
> Observed and judged."

It was a wicked and fearful system that Venetian Inquisition! With its ever-watchful spies, its tortures, its secret dungeons, its mysterious, silent executions, it exercised a despotic sway over the lives and fortunes of the Venetians, and filled their minds with an unspeakable dread. The secresy and despatch of this tribunal excited the wonder of every citizen of the republic, and taught them to veil their sentiments with the utmost caution. Alas! that poor Giuseppe had not concealed his!

MISSIONARY LABOURS AMONG THE EMIGRANTS PRIOR TO THEIR DEPARTURE.

LETTER FROM AN IRISHMAN AT THE DIGGINGS.

THE following are extracts from a communication made by the Rev. J. W. Welsh to one of the Secretaries of the Society for Promoting Christian Knowledge: we feel certain that many of our readers will be interested in the details contained in the extracts, and we hope that some will aid the zealous missionary in his truly Christian labours. The Irishman's letter will no doubt, by its orthography and quaintness, occasion a smile, but with it will spring the conviction that the honest fellow has his heart in the right place. We hope that he may many years live to gladden the eyes of his mother, and before he be called upon to "bury her dacently."

"DEAR SIR, *Birkenhead*, Feb. 14, 1853.

"At the close of the November quarter there were two important matters pending, in connexion with my missionary labours on the Mersey, which were then in an unsettled state.

"The two matters to which I have alluded were, the establishment in Liverpool of female emigrant class-rooms, and the procuring a licence to perform Divine service and administer the sacraments in the Depôt Chapel at Birkenhead.

"For a long time I had felt deeply the want of some rooms at the north end of the town, where the females might be assembled for prayer, religious instruction, and information on different subjects connected with emigration. Situated as they are in the lodging-houses, it would be impossible to effect these objects there on anything like a large scale. It was obvious, therefore, that some central establishment was needed, where, removed from the turmoil and confusion of the streets, they might be collected together at stated hours, from day to day. Those only who know something of the fearful temptations to which innocent country girls are exposed in Liverpool, can fully appreciate the value of an establishment of this kind.

"Finding, however, the rates of house-rent so enormously high in that quarter of the town, I was beginning to despair of procuring the means of obtaining the object I had in view. But at last, taking courage, I addressed a letter on the subject to the Liverpool Dock Committee, which was most kindly received by that body; and, after several further communications, the Committee at length very generously granted me the free use of four spacious rooms, adjoining each other, in the very centre of the emigrant quarter, and situated, moreover, within the walls of the Prince's Dock. The Ladies' Visiting Committee at once fitted up these rooms with forms, tables, shelves, &c., and placed a resident matron in one of them, to be always on the spot, and to assist the ladies in their labours amongst the female emigrants. Here may be found, from 11 o'clock till 3, on Tuesdays, Thursdays, and Saturdays, two or more of the members of this most valuable Committee, teaching their classes knitting, sewing, patchwork, how to cut out articles of dress, and, above all, how to behave themselves "as becometh the Gospel of Christ." The naked are here clothed; the destitute are relieved; the sorrowing are comforted, the weak encouraged and strengthened. When I think of all the difficulties that lay in our way but a few months ago, and see now the complete success which has attended our efforts, I feel my own heart lifted up in thankfulness to Almighty God, who is thus blessing so signally the feeble labours of his weak and unworthy instrument.

"The second matter of importance, the licensing of the Emigrant Chapel at the Birkenhead depôt, has, through the kindness of the Lord Bishop of the diocese, been also effected. For many months after the fitting up in a temporary way of this chapel, there was some danger of its being used as a common place of preaching for all religions; now, however, it is licensed by the Bishop, and the congregation is chiefly members of our Church.

"During the last half-year, I have had, on board ships in the river, 149 services, each including a lecture; and in the Depôt Chapel, 153 services, each including a lecture or sermon. Within the same period I have baptized 129 children, and on 34 occasions administered the Holy Communion.

"The vastly-increasing stream of emigration to Australia is formed of a superior class of persons. It would be impossible to describe the interest which these fine, intelligent English and Scotch people exhibit in the spiritual aid afforded them by my ministrations.

"Indeed, I feel strengthened from day to day, in the assurance that I have the prayers of many a dear child of God amongst them.

"A letter has been forwarded to me, addressed by a young Irishman—a pious member of the United Church—to his mother, who resides in the county of Monaghan. He writes from Australia, dating April 6th, 1852. I find he left Liverpool in December 1851, and that I had presented him with a Bible, a Prayer Book, and a copy of the "Churchman's Companion," a valuable work by the Rev. T. Dowell. I do not think it will be out of place to give a copy of this interesting letter. The orthography is literally as follows:—

"C——, South Australia
April 6 18 hd and fifty too

"My darling mother

here i am thanks be to the Lord safe and well at the goold ragings on the other side of the world glory be to God my deerest mother we were all in sich reglar confusion after landing at Sidney that I could not sit down to rite to you And my deer margaret but I felt all as one as if I was with you at home on the ould ground at K——

australia is a quare place not a taste like the county monaghan or I bleeve any place else. But in my next letter i hope to insinse you into the whole consarn the First day i and jim Gordon begun to Dig i turned up a nate bit of goold nuggets the call them here about the size of your themble i intend plase God my darling mother to sind you this as soon as I can get to sidney and Find a dacent captin of a ship going to liverpool. We got a dale every day sence i think youl be freckened when i tell you that I have the worth of 400 pounds this minit under the table where I am riting waiting for the escort but my darling mother tho we have good luck in regard of money i am afeared of the curse of God upon us all count of sabath breaking as two jim and i thry to keep the Sunday as well as we can i reed the prayrs and jim reeds the lessons by ourselves under a rock near the River every sunday Oh mother as long as you live go to church i would give ½ my diggins For one sight of a clargyman once more reeding the ould Prayrs fornint me i niver new what it was to be in a furrin country til i came up here Theres a Power of inglish and skotch but they are mighty careless and Covechus As jim says and its true they Live like haythins and dy like Dogs

jem made a Prayr and says it every night me and him that God Almighty would sind a minister into This place and I hope my darling mother you and margaret will Pray the same night and morning theres a nate quite boy here that we know from linkinshire a carpinter and he says if a parson comes he will bild a house for him for Nothing theres a man higher up the River a methodist i think one of the Diggers who Prophesises that if the sundays is not better kep weell have a plage or a fammen before we are much oulder And its no wonder Deer Mother i dont forget you who far A way when I make Little more money here i dont intind to forsake you but to go Home once more and bury you dacintly with the Help of God. give my love to James kirke likewise to his wife mary to my deer margaret and accept the same youself my darling mother above the World and Remin your

Obadient and Affecktionat
son James J————

"To Mrs. Catherine J————
G————
K———— post Office
County Monaghan
Ireland

"Nota Bania i promised to rite to the emagration chaplain at liverpool sind him This letter and tell him I will soon send him a long account of what I am doing"

EMIGRATION FROM THE RIVER MERSEY FOR 1852. NUMBER OF SHIPS, 925.

United States		187,962
South America		347
North American Colonies:—		
Canada	3,872	
New Brunswick	328	
Nova Scotia and Cape Breton	60	
Newfoundland	52	
Prince Edward's Island	51	4,363
West Indies		73
Africa		91
Australian Colonies:—		
Sidney	4,013	
Port Phillip	29,378	
Van Diemen's Land	608	
South Australia	2,264	36,263
Grand Total		229,099

LICHENS AND MOSSES.—No. II.

We have seen in a former paper how wonderfully God provides for the first breaking up of the surface of the stony rock by means of that humble class of plants, the Lichens. On the stratum of soil thus commenced, another tribe of diminutive, though very beautiful plants, the Moss tribe, speedily establishes itself, and carries on the work of preparing the ground for the reception of plants of larger growth and more complete structure. No student of nature can have failed to notice and admire the mosses, to whose vivid and varied tinting our landscapes owe so much of their beauty, especially in the winter season; for it is in the coldest parts of the year that this lovely portion of the vegetable kingdom presents itself in its fullest beauty. There is no season in which these tiny plants may not be found clothing the surfaces of stone walls, rocks, and banks, as well as of the trunks of trees. They are the produce of all parts of the world, where the atmosphere is moist: but although they may be found in very cold latitudes, both north and south of the equator, they abound most in temperate climates.

Mr. W. Gardiner, of Dundee—an author who, though by birth and habit occupying a low position in life, has raised himself by his industrious and intelligent researches into the treasures of the vegetable kingdom to be the respected assistant and associate of men of science—thus describes the localities in which they are found, which are as varied as the forms they assume:—"Some are found in the deepest valleys, by the sides of lonely streams, or within the spray of roaring waterfalls; others brave the tempests of lofty mountain-summits, or seek shelter among their shelving rocks; many court the shade of the forest, or nestle about the roots of the hedge-rows, whilst various species seek the open fields or the sunny wall-tops, or have their homes in the deep morass, or dwell on the sandy shores of the mighty ocean." Mosses have a wonderful power of resisting extremes of temperature, and exhibit a very remarkable tenacity of life when their growth is checked by want of moisture, so that they may be often restored to vitality when they have even been dried for many years. There is nothing in their simple and delicate structure which would lead us to infer that they would be thus enduring. "But," remarks Carpenter, "it is with plants as with animals. The more simple and lowly the being, the greater is usually its tenacity of life, under circumstances which

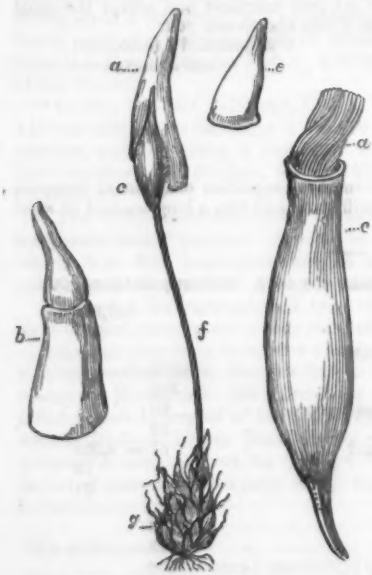


Fig. 1.—Tortula Muralis.

depress the vital powers of higher kinds, whilst the influence they require are often too powerful for it. Thus mosses and lichens, overstimulated by heat and dryness, wither away in summer, but vegetate freely at a season when there is no other vegetation." Mosses exhibit a very singular and beautiful structure, and occupy the next place above the lichens in the scale of vegetation. A moss, like other plants, has a root, and also a stem and leaves, and these, with the parts which form the seed-vessel, constitute the whole plant, every part of which is composed of cellular tissue, without any trace of woody fibre, or of those vessels for the transmission of air or fluid, which are found in plants higher in the scale of vegetation. Their fructification consists of a capsule, or urn (Fig. 1 *a*), which in some species is borne aloft on a footstalk, called the "*seta*" (Fig. 1 *f*), and in others it is sessile, and nestles among the leaves. When this capsule is examined in its earliest state it is found to be one of many small, bottle-shaped bodies, clustered together, and sheltered under a membrane, that tapers upwards to a point. Most of these prove abortive, and never come to perfection; but in the process of time one bursts the membranous envelope, the greater part of which is carried upwards on its summit, and forms what is called the "calyptra," or hood (Fig. 1 *a*). When this falls off we see that the capsule (Fig. 1 *c*) is a little vessel, something like an urn, covered with a lid called the operculum (Fig. 1 *e*). When this lid is removed, we perceive that the vessel is hollow and contains the seed, and that around its margin is a fringe resembling hair. This fringe is termed the peristome; it does not exist in all mosses, some few species having the mouth of the theca, or urn, covered with a simple membrane; but where it does exist it is always found to consist of four, eight, twelve, or some other multiple of four—sometimes as many as sixty-four. These hairs, which are called the teeth of the peristome, or fringe, originally form a double row, one part springing from the inner, and the other from the outer coat of the capsule; when mature, however, one or other of these is frequently wanting, and sometimes both are obliterated. On the form and position of the capsule, the shape of the calyptra, and the number and arrangement of the teeth of the fringe, chiefly, are founded the subdivisions of these mosses into families, genera, and species. The spores, or seeds, as they may be called, are contained in the upper part of the capsule, where they cluster round a central pillar, called the "columella."

Let us now take for our example that pretty little moss which grows in green tufts on almost every vale, the Wall Tortula (Tortula muralis, Fig. 2). It is within the reach of all, and will afford us specimens of each of the parts of fructification. The calyptra, or veil, or hood, for it is called by either name, is in this species not unlike the cap of a Norman peasant-woman (Fig. 1 *a*). This which, as we have seen, originally covered the young fruit, as the stem, or seta (Fig. 1 *f*), lengthened, was borne up on the top of the capsule (Fig. 1 *c*). Now take off this little cap, and place the capsule under a magnifier, and you will discover more accurately the form of the operculum, or lid, which still covers the mouth of the urn (Fig. 1 *b*), but which would have been spontaneously thrown off when the spores were fit for dispersion. If you remove this lid, you will find that it covered a kind of tuft of twisted hairs, which at first look as it

Fig. 2.—Tortula Muralis.

they stopped up the mouth of the theca (Fig. 1 *a*); but if you cut the capsule perpendicularly from the bottom to the top, you will perceive that these hairs, which form the peristome of which we have spoken, arise in a single row from the rim of the theca. What office this elegant apparatus has to perform is scarcely ascertained, but it is supposed to be connected with the dispersion of the spores, as also to protect them in damp weather, and often acts in a most beautiful manner under the influence of moisture. If, when dry, you place the theca of this or many other mosses in a damp place, or even breathe gently on them, you may perceive this effect, and see the delicate hairs uncoil themselves with a graceful and steady motion, exquisitely beautiful to behold. You will scarcely be able to discern the spores unless you have a microscope of considerable power, but you may perceive the columella, around which they lie in a thin bag, open at the end, both column and spores being contained inside the theca.

In dry, sunny weather this fringe opens, and the spores are scattered by the breezes, and wafted to places suitable for their growth, where they spring up, grow into beauty, and die, their perished bodies forming soil on which the mosses of a future year may vegetate and flourish.

Fig. 3.—Slender Bog-moss.

Having now noticed the different parts which constitute a moss (which parts, however, vary much in the different species), let us now take a glance at some of the different genera, and their habits and habitations. There is one very beautiful genus, which may be almost termed aquatic, for they are only to be found in bogs, and there seek out the wettest parts. This is the genus Sphagnum (Fig. 3). Wherever you see a bit of bog richly carpeted with moss of a delicate green, almost white, but tinged here and there with brilliant scarlet from its decaying members, there forbear to tread, for you will inevitably find that the lovely clothing covers a depth of watery mire, into which you would plunge ankle-deep. In all mosses of this tribe, a dark-brown theca, without any fringe at its mouth, is found clustering among the pale leaves. There are other mosses besides the Sphagna found in bogs; one is the Bottle-headed Splachnum (S. ampullaceum); another the Marsh Bryum (B. palustre), a dwarf sort of very peculiar structure, and several others. Under the splash of fountains and waterfalls we find the Fine-leaved Didymodon (D. capillaceum), which grows in dense tufts of brilliant green, in crevices of moist rocks, near rushing waters. In such stations many species of Hypnum also luxuriate, which is a very elegant tribe, emphatically called "Feather-mosses," from the graceful and feather-like forms which they assume. There is one, known as the Long-beaked Water Feather-moss (Hypnum ruscifolium), which grows under water, either in still streams or amidst the rush of waterfalls, its dark green foliage looking very lovely as it is spread out by the transparent waters; and another, the "Ostrich Plume," or "Prince's Feather-moss," at once the most beautiful and the

rarest of our mosses. It grows in lax tufts all through the summer in woods; its stems are often six inches long, and its dark oblong capsule, with a conical lid and double row of teeth, each divided into sixteen parts, is lifted on a slender footstalk, which springs laterally from the branch, and its calyptra is split up in the manner termed dimidiate. The appearance of some of these long feathery mosses, when the sun shines on them and is reflected on the myriads of sparkling drops which hang on their bright-green branching foliage, is exquisitely lovely. There are many other kinds of moss of different tribes, which float on the living streams or lurk beneath the spray of the cascade; and there are others which can be found only on the lofty mountain's height, or the broad wild heaths, where they are fed entirely by the dew of heaven. One of these, the "Woody Fringe Moss" (Trichostomum lanuginosum), establishes itself on stones and rocks on the moors, giving to them quite a hoary appearance. It spreads in broad patches over the driest stones on Dartmoor and other such wilds: the whole plants, being closely covered with a long, whitish, hairy down, formed by the extension of the nerves of the leaves, have a very singular appearance. They are perennial, and often found in winter o:

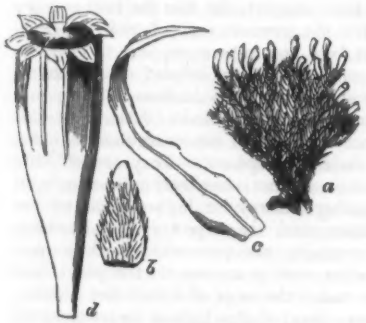


Fig. 4.—Crisp Bristle Moss.

Fig. 5.—Extinguisher Moss.

early in spring, encrusted with snow, yet bearing a profusion of fruit beneath their icy covering. Then, again, there are others which are to be found on walls and roofs of houses, on trees, or rocks indifferently. Our example, the Wall Tortula, is one of these, and the pretty Pincushion Moss (Grimmia pulvinata) is another. These grow in tufts; and each little plant which aids in forming such is not at longest above an inch from its root to the summit of its capsule. Some other species are confined to trees, as the straight-leaved Bristle-mosses (Orthotrichum affine), and O. crispum (Fig. 4), a species in which the teeth of the peristome are very distinct and beautifully defined, and in which the very hairy calyptra is a marked feature. The Encalyptra, or Extinguisher Moss (Fig. 5), is chiefly found on walls and stony banks. This last named is a very remarkable species, from the disproportionate size of the calyptra, which entirely covers the

whole of the capsule, and looks much like an extinguisher placed over a candle. There are many other genera which present us with species full of beauty and interest, but we must limit ourselves to the notice of one more, the genus Polytrichum (Fig. 6), so named from two Greek words signifying "many" and "hair," on account of the very numerous hairs on the calyptra. Most of the species are very large, some of them being as much as nine inches in length. Mosses of this family adorn our heaths and the sides of streams at all seasons of the year, but chiefly in the summer and autumn. They are easily distinguished by the rigidity of the leaves and the square form of the theca, which is generally covered by a very hairy divided calyptra, although occasionally this organ is smooth. The theca grows on a terminal footstalk, and is large and conspicuous: the peristome is double; the outer one, consisting of thirty-two, or sixty-four equidistant teeth, curved inwards, the inner of a dense horizontal membrane connected with the outer teeth.

Fig. 6.—POLYTRICHUM.

Mosses are but little dependent on soil for their support, for, like the lichens, they derive the greater part of their nourishment from atmospheric supplies. They are the most extensively diffused of all plants, extending from the confines of perpetual snow to the torrid zone. Even the most barren spots afford the conditions requisite for their development. They are of little direct use to man; but their indirect uses, in preparing the way for higher forms of vegetation, and their power of absorbing and retaining moisture, which makes them a shelter and protection to the plants and trees round the roots of which they cluster, render them of the highest importance to him. Mosses, however, afford little food to living creatures; few insects harbour on them; no butterfly obtains nectar from their flowerless stems; and if at any time cattle or the smaller animals which frequent the woods and wilds should eat of them, it is by chance and not by choice; and thus, though higher in the scale of vegetation than the lichens, they must yield precedence in usefulness to their humbler relations, among whose ranks are found individuals which supply, not only food to many of the inferior animals, but also food and medicine to man, as well as articles of high importance to the perfection and beauty of his manufactures.

HE lives long, who lives well; and time misspent is not lived, but lost.

THERE are few, very few, that will own themselves in the wrong.—SWIFT.

CURIOSITIES OF PHYSICAL GEOGRAPHY.—No. IV.

The animal kingdom comes next in order. Parry found only six species of insects during a stay of eleven months in Melville Island, because lichens and mosses do not supply food for this division of the animal kingdom. On the other hand, it is said that forty different insects are quartered upon the nettle. Notwithstanding their facilities for migration, insects frequently confine themselves to a particular locality. Mountain chains are an effectual barrier to their movements, they even differ on the two sides of the Alpine Col de Tende. Some American insects are years in reaching their perfect condition. The Simulium columbense, a minute mosquito, swarms to such an extent in some parts of Hungary, that it is impossible to avoid swallowing many; cattle and children have been killed by them. In South America whole districts are rendered uninhabitable by insects, which are so numerous on some parts of the Orinoco that they form a dense cloud twenty feet in height. Strange to say, they do not infest dark-watered rivers. In Brazil they so abound as to be often heard on shipboard at some distance from the shore; in this country there are thirty species of stingless bees. In South America there are fireflies, whose pale green light is visible two hundred paces off. Brazil has a scorpion six inches long, and the sting of a species of this insect in Carthagena produces loss of speech for days. White ants are so destructive in South America that, according to Humboldt, no manuscript one hundred years old is to be found in the country; huge bird-catching spiders are also found here. Locusts cross the Mozambique channel, which is one hundred and twenty miles broad. Butterflies sometimes migrate in clouds. Insects, invisible to the naked eye, are found in air, sea-water, rain, fog, snow, ice, stagnant water, animal and vegetable juices, volcanic ashes, pumice, opal, the minute dust that sometimes falls upon the sea, peat bog, dug up from considerable depths, and in boiling water. There is not a drop in the ocean which does not perhaps encircle nearly as many tenants as there are inhabitants on the earth.

After the curiosities of insect life, we will go on to those relating to marine animals. In Ross's antarctic expedition living creatures were brought up from a depth of six thousand feet, and there are reasons for believing that animal life exists under the enormous pressure of two and a quarter miles of water. The ocean is often tinted by myriads of insects. In the Arctic seas spaces of twenty or thirty square miles are discoloured to the depth of fifteen hundred feet by animalcules. Scoresby estimated that there are so many insects in two miles of this water, that it would employ eighty thousand persons unceasingly, from the creation of man to the present time, to count them. Now one-fourth of the Greenland Sea consists of such water. The argonauta hoists its sail and swims along the surface of the ocean; cod-fish migrate in such dense shoals that the sounding lead can scarcely fall through them; sixteen millions have been taken at one place in a few weeks. In the North American lakes there is a thick-scaled fish, somewhat resembling those of the far remote eras of geologists: the Gillaroo trout is found in Ireland only. A cuttle-fish at the Cape de Verd Islands adapts its changing colours to the hue of the ground beneath it. Many marine creatures are luminous, causing the ocean to appear as if on fire, and the wake of a ship to resemble a stream of flame. Some possess the power of giving electric shocks. Fishes that live at great depths have large eyes (and some have serrated tails with which they defend themselves). A million seals are killed every year in the South Atlantic. The lamantin, or

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sea-cow of the Amazon, is found in that river twelve or fifteen feet in length, with a round body like a wine-skin, browsing in herds on sub-aquatic herbage. The dugong, of eastern seas, sits upright to suckle its young, which has given rise to the fabulous mermaid. The sea-unicorn has an ivory tusk, with wreathed grooves growing straight from the head to the length of eight or ten feet. Occasionally it has two tusks of equal length. Scoresby has seen fifteen or twenty of these creatures sporting round his ship, and crossing their tusks as if they were fencing. The spermaceti whale, averaging sixty feet in length and forty in circumference, and having a throat wide enough to swallow a man, swims in herds of five or six hundred. In their play they bound several feet into the air, falling back again with a cannon-like crash into the sea, which is lashed into lofty foam-capped columns. These creatures will sometimes bite a whaling boat in two; in 1820, one of them drove into and wrecked an American ship. Rorquals are sometimes from eighty to one hundred feet long; these whales are the largest of marine animals. The chætodon, a native of the fresh waters of India, catches its prey by darting a small quantity of water at it; in this way it will knock off an insect from the leaf of a plant at a distance of five or six inches.

We will now turn to reptiles. There are sixty species of tree frogs, all of brilliant colours, and living mostly on lofty trees. They can walk on the under side of the smoothest leaf. A North-American frog croaks in bands; one band commences, a second responds, and a third answers, till the croaking is heard at a considerable distance; then follows a pause, after which the noise is heard again. At Rio Janeiro there is a little tree frog which croaks in different notes. In Brazil there is a toad a foot long. In general there are twenty times as many harmless snakes as poisonous ones. Tree serpents are found in tropical countries: they are generally green; and some feed on birds, which they watch suspended by their tails from boughs. Sea snakes are venomous and peculiarly fierce; they inhabit the Indian seas in shoals. Hindostan possesses a dragon with wings of skin, which serve to *float* the animal as it leaps from bough to bough in pursuit of insects. Some lizards can change their colours, assuming a succession of ever-varying hues. In Australia there is a lizard with a tail shaped like a leaf. A turtle with a leathery covering has been sometimes caught on the English coasts, of the weight of eight hundred pounds; some turtle have weighed from fifteen hundred to sixteen hundred pounds, or more than nine good-sized men.

It is not known that there are toads, frogs, or snakes, in any of the Polynesian Islands, except those called the Marianne Islands, nor are they found in Terra del Fuego or in the Falkland Islands.

Birds next engage our attention. Migratory birds, when they fly in company, usually have a leader; wild swans fly in a wedge-shaped flock, wild geese in a line. Oriols, goldfinches, and redbreasts, taken from Canada to the United States when young, immediately fly northwards towards their early home, if freed from confinement when the time of migration has arrived. Storks and swallows are exact even to a day in their time of departure. The breast muscles of a swift exceed all the rest of the body in weight; hence this bird darts along at the rate of one hundred miles an hour. The eider-duck lines her nest of seaweed with down from her own breast; this down is taken twice in a season, and the third time the drake supplies the lining from his breast. In Faroe are twenty-five crags called Vogelbird, or bird rocks, lying in a terrific chasm, encompassed by rocks one thousand feet high. Upon the low rocks, scarcely above the

water, perches the glossy cormorant; plundering skuas occupy a higher shelf; next come kittywakes, on close-packed rows of nests, the heads of the mothers almost in contact; then auks and guillemots marshalled in order, with their white breasts toward the deep, and absolutely touching one another; last of all come the puffins, almost imperceptible at such a height, but from their flying backwards and forwards. Tropical birds are often gorgeous in their plumage; kingfishers of brightest colouring; flycatchers of metallic lustre; the drongo in its coat of ultramarine; the calyptomene decked in emerald green; trogons dressed in vermilion and gold; pheasants of brilliant hues; honeysucking birds, with tongues ending in a brush; the magnificent royal bird of Paradise; beautiful pigeons; vividly-coloured huge-beaked toucans; and indescribably-gorgeous humming-birds, some no larger than a humble bee: here we have the campanero, with its bell-like toll, startling the South-American traveller.

The African weaving-bird forms its nest with grass and twigs, skilfully interwoven. The condor of the Andes builds its nest at an altitude equal to that of Mont Blanc; and Humboldt saw it wheeling in the air at the height of twenty-two thousand feet, or more than six thousand feet higher than that mountain. The kamichi of South America has one or more sharp spurs at the point of each wing, forming a terrible instrument of attack. The albatross sometimes measures fourteen feet from tip to tip of its wings. In Australia we have the Menura superba, whose outspread tail is shaped like an ancient lyre; birds that deposit their eggs in mounds of putrifying matter to be hatched by the heat—these mounds being often more than fourteen feet in height, and as much as one hundred and fifty feet in circumference; and the bower bird, the artistic connoisseur of the bird race.

In New Zealand we have the nocturnal and burrowing apteryx, a huge bird that can neither fly nor swin, now nearly extinct; and at no very distant period this country possessed the dinomis, one species of which was eleven feet high, twice the height of an ostrich. Here too, we have the parson bird, with its white tuft on its jet black coat: this bird can be trained to speak whole sentences.

Animals are the next in order. In Kamschatka rats migrate in spring in great numbers, travelling eight hundred miles over rivers and lakes. The Lapland marmot migrates in bands once or twice in a quarter of a century: some of these bands go into the Western Ocean, others into the Gulf of Bothnia, where they perish. Some European animals are confined to one locality: the mouflon is found only in Corsica and Sardinia; Sicily has several of its own bats and mice. Asia has sheep about as high as a year-old colt, with fine curling horns. In Africa, quadrupeds may often be seen wandering in troops accompanied by ostriches—a curious companionship.

Humboldt remarks that the most intelligent apes are the least gay. The Esquimaux dogs were taught to bark by dogs in ships of discovery; previously they had been mute. The jaguar of South America, hunting as it sometimes does in troops, has been known to kill the people of a whole village; the vampire-bat of this continent enters huts by night and drains calves and other animals of blood, so that they sometimes die, and occasionally it attacks men.

In Australia is found the ornithorhynchus, with the head of a quadruped, and a bill like that of a duck. It is an aquatic animal, inhabiting burrows on river banks; another animal similar to this, but covered with spines, is found here.

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Last of all comes *man*, so diversified, both physically and mentally, and yet anatomists have found what the Bible had already declared, that the black, thick-lipped, woolly-haired negro, and the white-skinned, regular featured, fine-haired Englishman, are mere varieties of one species.

Nations sometimes die out without any perceptible cause: in Europe, pure Celtic blood has been on the decline for two thousand years, and, strange to say, the Celts are almost invariably Roman Catholics. Many instances have occurred of black parents having albinos of a pearly white with red eyes, and red-haired children. The features of the Ethiopians, Persians, and Jews, have not varied for more than three thousand years, as we know from ancient paintings. There are blue-eyed, fair-haired people in the Ruddhua mountains of Africa, and similar instances are not very uncommon. The Esquimaux lives entirely on animal food, and requires ten or twelve pounds of meat and fat in twenty-four hours, whilst the Bengalee subsists on a rice diet. It is believed that no particle of a man's present body formed any part of that which he inhabited seven years ago. The most savage people are the ugliest; intercourse with civilized men greatly improved the expression of the countenances of the Fuegians brought to England in 1830, by Fitzroy. In about a year after their return home their look of intelligence had vanished. Some nations seem stationary: Hindostan and China have made no advance in the historical period. Civilization alters climates: it was once deemed impossible for grapes to ripen in France north of the Cevennes; and the Rhine and the Danube had an annual coating of ice thick enough to bear anything. Man can tame even the hyæna, which has been seen to lie down like a dog and lick the hands of a stranger, who many months before had been kind to it on a voyage from India. Man is a free agent; but the way in which this free agency is governed by general laws is strikingly shown by statistical details. For instance, from tables kept in Belgium, it appears that nearly the same number of marriages take place every year; and so exact is the uniformity that it is found to exist even in the number of annual marriages between persons similarly situated with respect to age, as, for example, in the number of men of thirty years of age and under, married to women of sixty and upwards. The same regularity is observed with respect to crime, and in the number of convictions of persons tried, which in France was sixty-one, year after year, out of every hundred trials. Forgetfulness, too, is under general laws: about two thousand letters are posted in London every year without an address. In many parts of the world magnificent ruins attest the former existence of people of whom nothing is now known. Stephens discovered ruins decorated with sculpture and pictorial writings in the forests of Central America; and splendid buildings, in good preservation, are to be found all over Eastern Asia. During the years 1845 and 1846, there were fifteen counties in England, and eleven in Wales, in which no person who could read and write fluently was convicted of any crime; and in 1846, only forty-eight educated persons were convicted in all England and Wales.

Here we bring our curiosities to a close, though the subject might easily be extended to volumes. If the wisdom, the power, and the goodness of the Creator have been made more apparent by this slight detail of a few of the wonders of His creation, we rejoice, and ask the reader to unite with us in fervently breathing the words of Holy Writ—"O Lord, how manifold are thy works!"

THE EDDYSTONE LIGHTHOUSE.—No. II.

On the 22nd of August, 1755, the workmen returned on shore, having finished all necessary repairs for the season; between which time and the 1st of December following the attending boat had been several times to the lighthouse, landing stores, when the light-keepers made no complaint excepting that one of the bricks in the fireplace of the kitchen had become loose by the shaking of the building. It does not appear, however, that the fire commenced in the lower part of the lighthouse, for on the morning of the 2nd of December, about two o'clock, when the light-keeper, then upon the watch, went into the lantern as usual to snuff the candles, he found the place full of smoke; and, on opening the door into the balcony, a flame instantly burst from the inside of the cupola. He immediately endeavoured to alarm his companions; but they, being asleep in bed, were not so ready in coming to his assistance as the necessity of the occasion required. As leathern buckets were kept in the house, and a tub of water in the lantern, he attempted as speedily as possible to extinguish the fire in the cupola by throwing water from the balcony on the outside covering of lead; but even with the aid of his comrades, who now came up, the task of raising water upwards of seventy feet from the sea prevented their making much progress in stopping the mischief; and as, to be of any service, the light-keepers had to throw water four feet above their heads, we cannot be surprised that they should have been unable to arrest the fury of the flames. The fire, instead of being extinguished, increased; and a remarkable circumstance at length put a stop to further exertions. While looking up at the direction and success of the water thrown upon the flames a quantity of melted lead suddenly rushed in a torrent from the roof, and fell upon the face and person of one of the unfortunate men, severely burning his neck and shoulders, while he declared "that a quantity of the burning lead had fallen into his open mouth and passed down his throat." Alarmed at this shocking occurrence, and at the increasing fury of the fire, the men became so intimidated that they retreated from the scene into one of the rooms below, with but the melancholy prospect of retiring downwards from room to room as the fire advanced over their heads. Early in the morning the lighthouse was discovered to be on fire by some Cawsand fishermen, and a boat was instantly procured, and sent to the rescue of the people who were supposed to be in such a perilous situation. This boat reached the rock at ten o'clock, after the fire had been burning full eight hours; and during this time the three light-keepers were not only driven from all the rooms and the staircase, but, to avoid the falling of the timber, red-hot bolts, &c. they had taken refuge in a hole, or cave, on the east side of the rock, it being then low water; and here they were found almost in a state of stupefaction. The wind was easterly at the time, and though not very strong, was yet sufficiently so to render the landing on the rock both hazardous and difficult; the gallant crew, however, succeeded in taking off the men, and then proceeded with them to Plymouth. No sooner were the men landed than, strange to say, one of them decamped, and was never heard of afterwards. This circumstance occasioned at the time considerable suspicion as to whether the fire might not have originated in design; but the peculiar situation of the lighthouse seemed to preclude the possibility of its having been burnt wilfully, unless as a means of self-destruction. Mr. Smeaton attributed the man's flight "to that kind of

panic which sometimes on important occurrences seizes weak minds, leading them to act without reason, and in so doing to commit actions the reverse in tendency of what they mean them to be, and of which afterwards they may have to repent in vain."

Admiral West, who then lay with a fleet in Plymouth Sound, on hearing that the Eddystone was on fire, immediately sent out a sloop, properly manned, with a boat and fire-engine; but in endeavouring to make a landing of the engine on the west side the boat, with its men and engine, were flung upon the rock by a wave, which retreated and left them there. Before the engine could be got out another wave came, set them afloat, and swept them back again upon the sea. Although British tars are not dismayed with small matters, this accident taught them that any further attempt to land might be attended with loss of life. They notwithstanding attempted to play the engine from the boat; but the agitation of the waves soon broke the engine hose, and their well-meant expedition ended in defeat and disappointment. The fire was left, in consequence, to its own course; and during the succeeding days it was observed that the interposed beds of timber were sufficient to heat the moorstone beds red-hot, and that the whole mass became one great body of solid fire. It was not until the seventh day of the month that the joint action of the fire, the wind, and the sea, totally completed the catastrophe; and no trace of the structure remained, save that the greatest number of the iron cramps and branches were left standing upright upon the rock.

The unfortunate man who discovered the lighthouse to be on fire, and suffered so much from the melted lead, was sent to his own home at Stone-house, near Plymouth. His name was Henry Hall, and though ninety-four years of age he was a remarkably healthy, active man. He repeatedly declared that he had swallowed a quantity of lead; and the fact, which was disbelieved during his illness, was proved to be correct when he died twelve days afterwards, for a piece of lead was then found within him, which weighed more than seven ounces.

For many years the lighthouse was attended by two men only; and, indeed, the duty required no more, as the principal part of the employment, besides keeping the windows clean, was the alternately watching four hours, to snuff and renew the candles; each at the conclusion of his watch taking care to call the other, and to see him on duty before he himself retired to rest. But it happened that one of the men was taken ill and died; and although his comrade hoisted the Eddystone signal flag, yet the weather was for some time so boisterous that no boat could get near enough to the rock to speak. The remaining man found himself in a painful dilemma; for if he threw the body into the sea he might be charged with murder; he therefore allowed it to remain where it was, until it became so offensive that he was at last unable to enter the building. When the attending boat at length effected a landing, a month had elapsed since the man had died, and the consequences may be better conceived than described. This circumstance induced the proprietors to employ a third man, so that in case of the recurrence of a death, or the sickness of either, there might be constantly one to supply the place. This regulation also afforded the men a seasonable relief, as they might in their turn occasionally visit the mainland, from which they had exiled themselves.

The third, and present, lighthouse was erected by the late Mr. Smeaton. This gentleman was originally a philosophical-instrument maker, and being elected a Fellow of the Royal Society, as a compliment to his well-

known talents, was also honoured with the esteem and friendship of the then president, the Earl of Macclesfield. By him he was recommended to Robert Watson, Esq., one of the proprietors of the lease held under the Trinity House, as a person eminently qualified to construct a new edifice on the Eddystone rocks. From a careful inspection of the plans and models of the former lighthouses, Mr. Smeaton was so struck with the reasons which had caused the failure of both these structures, that he proposed a building composed entirely of stone. This scheme involved the expenditure of a much larger sum than was appropriated; but although nearly half of the original lease had expired, the proprietors expressed their willingness "to rebuild the lighthouse in any better or more durable form for the benefit of posterity." On these conditions Mr. Smeaton undertook the building; but, at a subsequent meeting of the proprietors, objections were raised to its being wholly of stone; and such were the prejudices of many well-informed individuals that it was not without considerable difficulty that stone was adopted instead of timber. Their chief objections were, that the safety of Rudyerd's lighthouse during so many years had mainly depended on the elasticity of the materials employed, which enabled it to yield to the shocks of the sea. Indeed it was affirmed that the motion of that wooden building had been so great during violent storms as to throw trenchers and other articles from the shelves in the upper rooms. To this Smeaton replied, "that the great agitation of the building arose from its want of weight, as well as want of strength; that the edifice he had in prospect would be much more substantial, and would not give way to the sea, but the sea would give way to the building."

Mr. Smeaton set out on his first visit to Plymouth upon the business of the lighthouse, on the 22nd of March 1756; but, strange as the fact may now appear, did not reach his journey's end until the 27th, "on account of the badness of the roads." On the 5th of April he landed for the first time on the Eddystone reef, where he found a number of iron bars, or bolts fixed in the rock, the last relics of Mr. Rudyerd's building. The extreme difficulty which attended the landing, induced Mr. Smeaton to adopt the expedient of keeping a vessel at anchor within a quarter of a mile of the rock, which should be capable of lodging the workmen and their tools, and thus enable them to take advantage of every favourable opportunity of launching their boat, and conveying materials at once to the rock, instead of having to take the voyage from Plymouth on each occasion. A workyard was also hired at Stonehouse, the site upon which the marine barracks now stand, and materials collected, both from the granite quarries of Cornwall, for the outside casing, and from Portland quarry, for the hearting, or interior work of the building.

The artificers were formed into two squads or companies, and placed under their respective foremen, who alternately relieved each other at the rock,—the party on shore being employed in the workyard.

The perils and exertions of both the architect and his associates were very great, and on one occasion the sloop, in which Mr. Smeaton and eighteen seamen and labourers were on their way to Plymouth, was all but lost.

At this period work was not done by contract, as it now is, and the workmen appear to have been much more independent than Mr. Smeaton quite approved of.

The wages of the foremen, while out at sea, were 5*s.* per day, and the further premium of 1*s.* for every hour spent on the rock; but when em-

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ployed in the workyard, or otherwise on shore, their wages were 3*s*. 6*d*. per day. The masons, 2*s*. 6*d*. per day at sea, with a premium of 9*d*. per hour; and the tinners, or Cornish miners, who at this time came in numbers to Plymouth in search of work, had 2*s*. per day, with a premium of 8*d*. per hour. That the seamen might be encouraged to use every exertion in landing the workmen at the rock as early as opportunity allowed, and supplying them with materials for their work, besides their weekly wages of 8*s*., they also received a premium for each landing. The general assistant, Mr. Jessop, was paid 10*s*. 6*d*. per day at sea, and 5*s*. on land, wages which did not include provisions.

"In carrying on a work of this sort," says Mr. Smeaton, "I have always found it more difficult to manage the workmen employed than to control the elements. High wages and encouragements may have the effect of inducing men, in cases where they cannot be compelled, to enter into such services, which no other kind of persuasion would be able to accomplish. This mode, however, by no means teaches them submission and obedience; on the contrary, it leads them to suppose that every success in the operations they have been concerned in, is owing to their own personal merit and address. Of this I had several examples in the course of the outworks of the last season, having discovered a strong tendency to mutiny and combination. William Hill, though as a foreman he received one shilling per hour extra pay, and had, in one week of the preceding season, entitled himself to the sum of five guineas, including his constant wages, yet this by no means increased his gratitude for being employed, or his attachment to the service." This man Mr. Smeaton was compelled to discharge, for disobedience to orders, as an example to other offenders. When he came to fetch away his tools, he claimed the fulfilment of the promise made by his fellow-workmen, that if he should be discharged, they would all leave with him. But upon Mr. Smeaton begging "that they would by all means follow William Hill," they seem, with the exception of one stonemason, to have prudently declined. In consequence of this example, the wages for extra work were lowered, and the men were allowed to work on the rock or on shore without compulsion; but they all, to Mr. Smeaton's satisfaction, expressed a perfect readiness to work on the rock as before.

The workmen in the time of Mr. Rudyerd were protected from the French privateers, as we have before said, by a vessel of war appointed for the purpose; but the generous interference of the French king appeared to give assurance that it was now no longer necessary. Still, the boats and sloop were much hindered and annoyed by being boarded by the English men-of-war's cutters, to impress the men; and notwithstanding that they were furnished with Admiralty protections, the officers commanding the press-gangs were frequently indiscreet enough to pay no heed to them, or to the service they were upon. To remedy this evil, Mr. Smeaton ordered a large figure of the lighthouse to be painted on the sails of the boats, and the men were also furnished with a stamped silver medal, that, while on shore, they might still have a token of the service to which they belonged. Another hinderance to the work arose from the fear of the French privateers, which was entertained to such an extent by the Portland workmen, that at one time they were almost afraid to stir out with their cargoes. Mr. Weston immediately applied to the Admiralty for a convoy, to accompany any vessel that might be ready to sail from Portland. This was repeatedly promised, but as no convoy ever arrived, two

vessels managed to venture out, and carry a fresh supply of stone, taking back to Portland the moulds for all the stones that could be possibly wanted in the course of the ensuing summer.

These moulds were the work of much time, and met with hinderances which must have sadly retarded the indefatigable architect. "After they were completed," says Mr. Smeaton, "the next thing was to procure a room, upon the floor of which we could lay them together, and, by laying down chalk lines, form the rest of the pieces that were wanted to make up each course, to which they formed, as it were, the *Roots*. This requiring a larger room than any we had at our command, I applied to the Mayor of Plymouth for the use of the floor of the Guildhall; but I was absolutely refused, on pretence that the chalk lines would spoil the floor! I afterwards applied for the Assembly-room, but there I succeeded no better. These unexpected rubs were not, however, insuperable, for by removing a partition between two rooms, which were the garrets of our cooper, I got a room large enough to hold each course at twice; and to this, though attended with a considerable addition of trouble, yet as it would only occur in the third, fourth, fifth, and sixth courses, I determined to submit, rather than expose myself to any more denials." The first year of the undertaking was occupied in forming the sloping sides of the rock into benches, more regularly than appears to have been done upon Mr. Rudyerd's plan, and into which the stones were let, in a dove-tailed form. At this period, the top of the House rock was somewhat higher than the rise of spring-tides, but it was so far levelled, that the first entire course of the present building is nearly upon a level with the high-water mark of spring-tides. In the course of the ensuing winter and following spring, arrangements were made for proceeding with the building operations. A large stock of materials had been provided, and various experiments on cements were made by Mr. Smeaton, with limestones from different parts of the coast, which enabled him to conclude, that a mixture of lime from Aberthan, in the British channel, and puzzolana earth from Italy, was the proper mortar for his building. A stock of oak trenails was provided for fixing the newly-laid stones to the rock or to the course below, which, with the system of dove-tailing and joggling, prevented them from being carried away before the mortar took "band," as it is called, or while the respective courses were in an unfinished state.

Things being thus in preparation for the operations of the second year, the attending large store-vessel, with a floating light, called the Neptune Buss, was moored in her place near the rock. In performing this operation, as the person who took the most responsible position, laid himself open to the risk of "being cut in two by the chain, or carried overboard by it;" "the post of honour," says Mr. Smeaton, "naturally devolved upon me, as I always made it a rule not to put another upon doing what I was afraid to do myself. I therefore attended to the getting in of the eleven links of the chain, applying the pieces of wood till we came to the great swivel of the bridle-chain, and though this took some time, and left room for serious pause, yet the consideration of having previously tried the chain by a far greater strain than it was ever destined to bear, prevented these reflections from making me uneasy."

On the 12th of June, 1757, the foundation stone, with the date of the year upon it, was laid, and although it weighed two tons and a half, it was thought necessary to secure it to the old stancheons until the evening tide, when it was fitted, bedded in mortar, trenailed down, and completely

fixed, all the outward joints being coated over with plaster of Paris to prevent the immediate wash of the sea upon the mortar. By much perseverance the third entire course, above the top of the rock, was completed by the last day of September, with which this season's work was successfully closed. Mr. Smeaton was forcibly reminded of the important necessity of his work while engaged in it, for on the 3rd of July of this year, in the night, between eleven and twelve o'clock, the watch upon the deck of the Neptune espied a sail upon the rocks; and a yawl was instantly sent to her relief, which soon returned with the whole crew of a vessel of 130 tons burden, returning from Dartmouth with ballast. "As there was no stress of weather," says Mr. Smeaton, "at that time to drive them upon the rocks, we could not but wonder how they got there; but we were told that not knowing exactly where they were, they took the rocks to be so many fishing boats till it was too late to clear them; and that on the vessel striking, she filled so quick that the boat floated upon the deck before they could get into it. The vessel sat almost upright upon the rocks, and the masts remained standing the whole of the day; but in the night following it was wholly beaten to pieces. Her crew, consisting of seven hands, having been refreshed on board the Neptune, the next day rowed off in their boat to Looe; and as we had not been on shore since the 8th, I took the opportunity of returning to Plymouth in a Cawsand fisherman, who came with an intent to pick up something from the wreck; in which however he was disappointed."

The numerous shipwrecks that occurred on this dangerous reef of rocks were quite a source of revenue to the inhabitants of the little fishing coves on the coast, and one which they now happily have no longer the facility of earning.

THE SKYLARK.

Bird of the wilderness,
Blithesome and cumberless,
Sweet be thy matin o'er moorland and lea!
Emblem of happiness,
Blest is thy dwelling-place—
Oh, to abide in the desert with thee!
Wild is thy lay and loud
Far in the downy cloud,
Love gives it energy, love gave it birth!
Where, on thy dewy wing,
Where art thou journeying?
Thy lay is in heaven, thy love is on earth.

O'er fell and fountain sheen,
O'er moor and mountain green,
O'er the red streamer that heralds the day—
O'er the cloudlet dim,
O'er the rainbow's rim—
Musical cherub, soar, singing, away!
Then, when the gloaming comes,
Low in the heather blooms,
Sweet will thy welcome and bed of love be!
Emblem of happiness,
Blest is thy dwelling-place,
Oh, to abide in the desert with thee!

James Hogg.